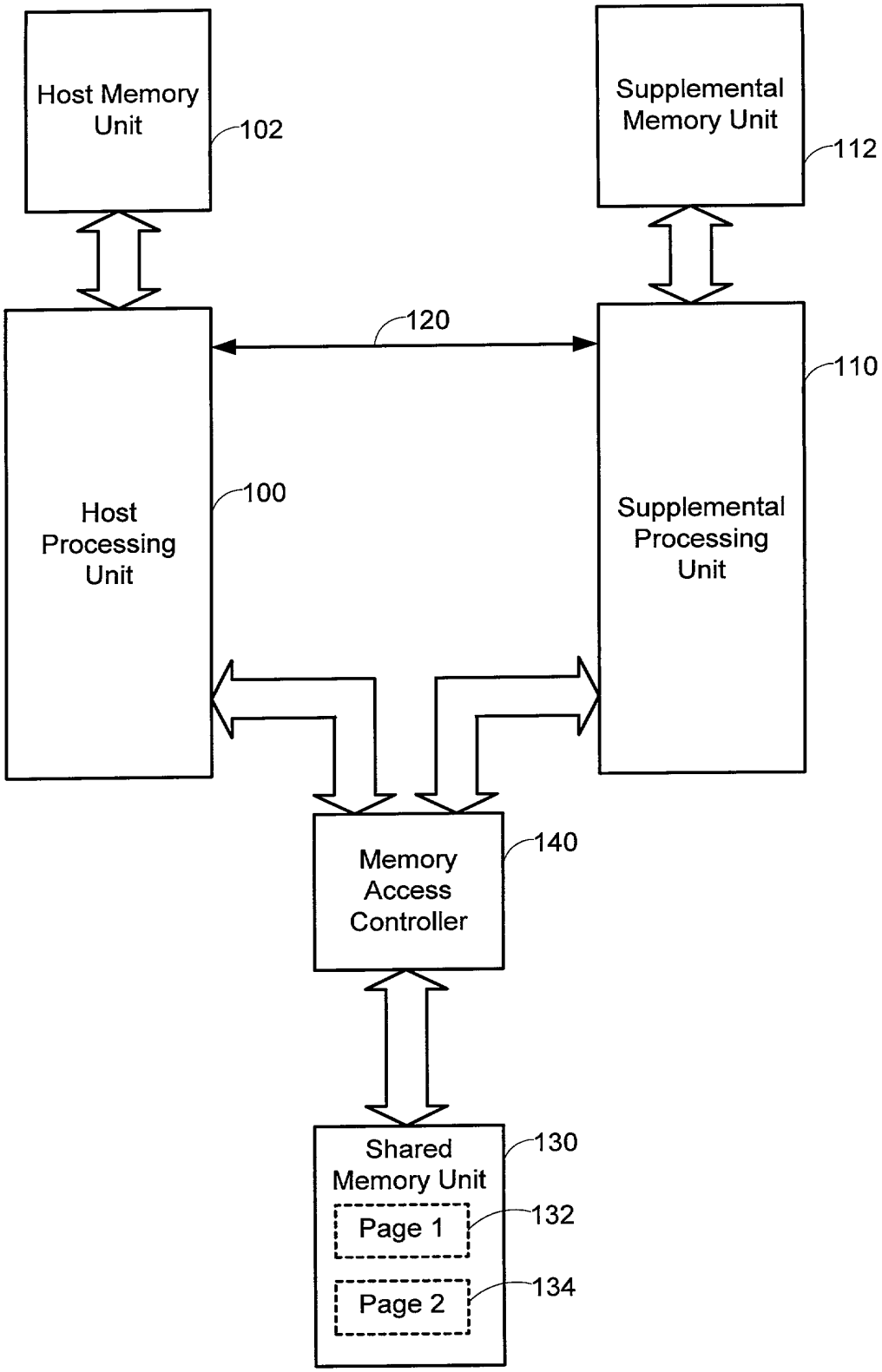
Host Memory Unit
102
Supplemental Memory Unit
112
120
110
Host Processing Unit
100
Supplemental Processing Unit
Memory Access Controller
140
Shared Memory Unit
130
Page 1
132
Page 2
134

Fig. 1

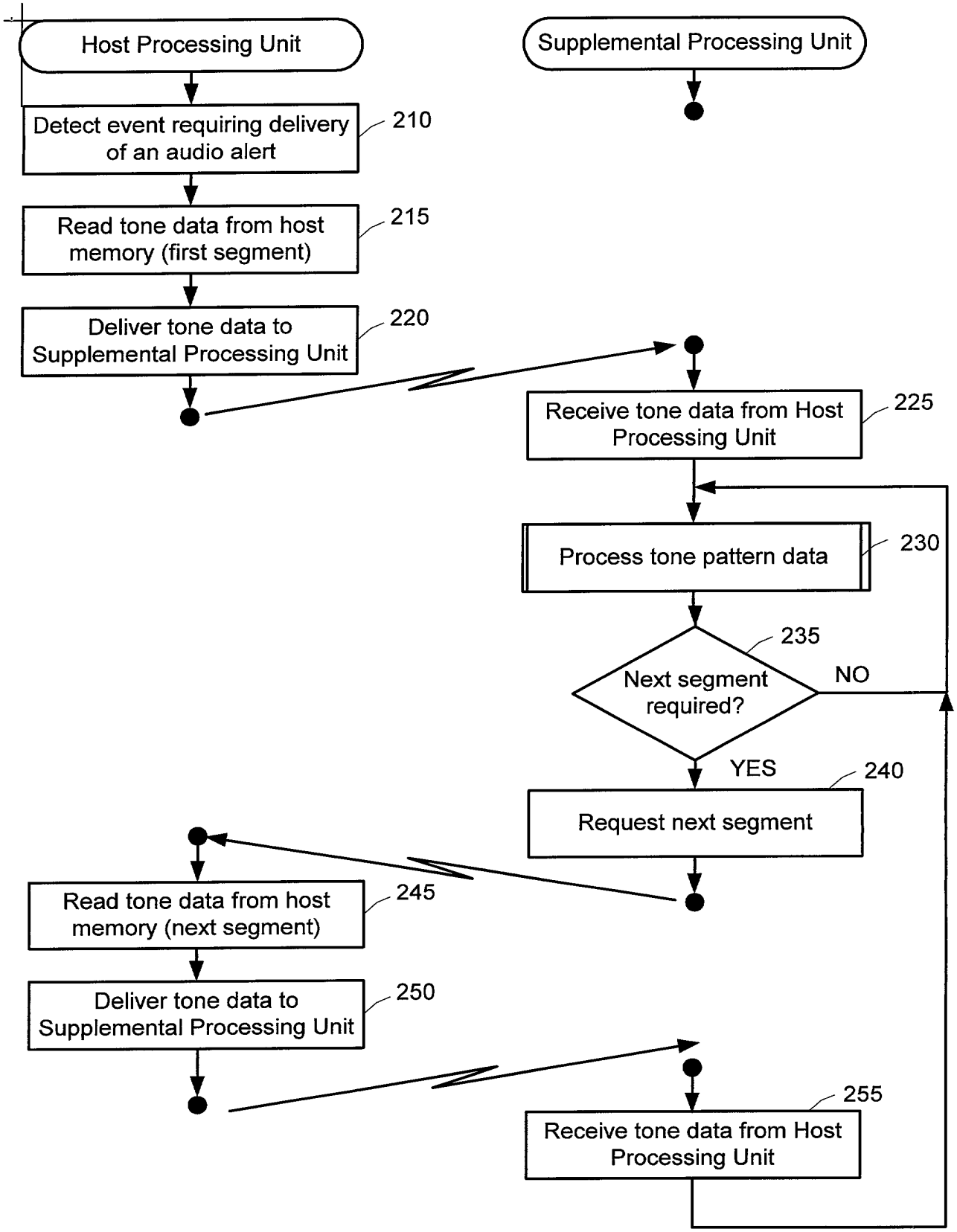
Host Processing Unit
Supplemental Processing Unit
Detect event requiring delivery of an audio alert
210
Read tone data from host memory (first segment)
215
Deliver tone data to Supplemental Processing Unit
220
Receive tone data from Host Processing Unit
225
Process tone pattern data
230
Next segment required?
235
NO
YES
Request next segment
240
Read tone data from host memory (next segment)
245
Deliver tone data to Supplemental Processing Unit
250
Receive tone data from Host Processing Unit
255

Fig. 2

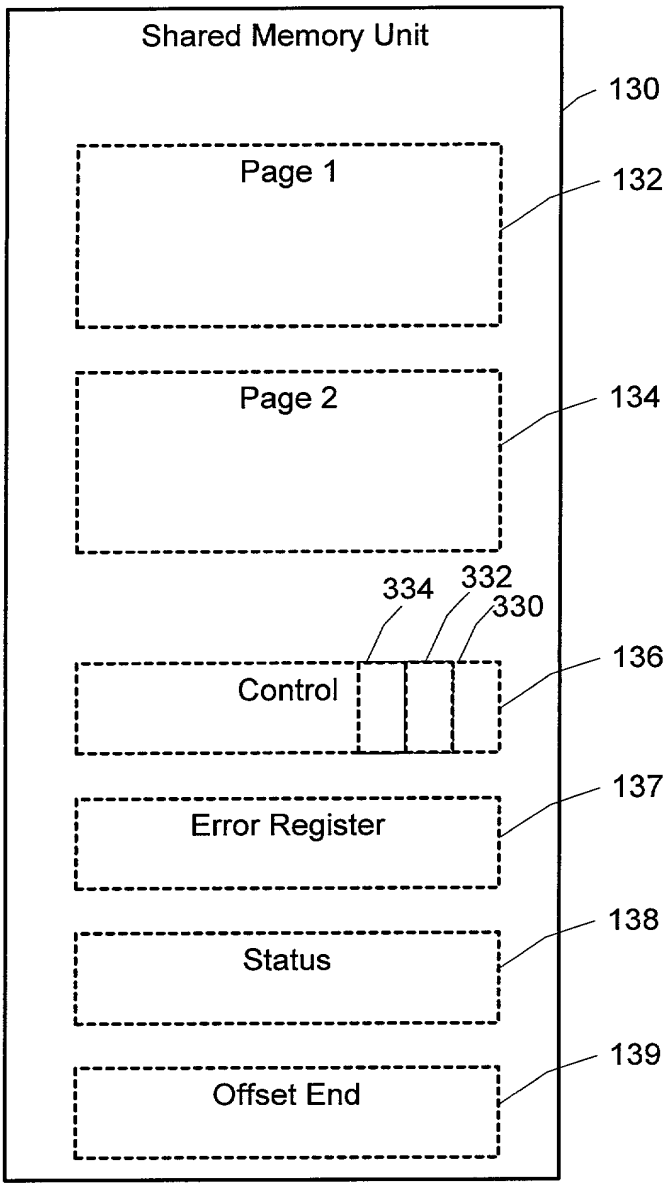
Shared Memory Unit
130
Page 1
132
Page 2
134
334
332
330
Control
136
Error Register
137
Status
138
Offset End
139

Fig. 3

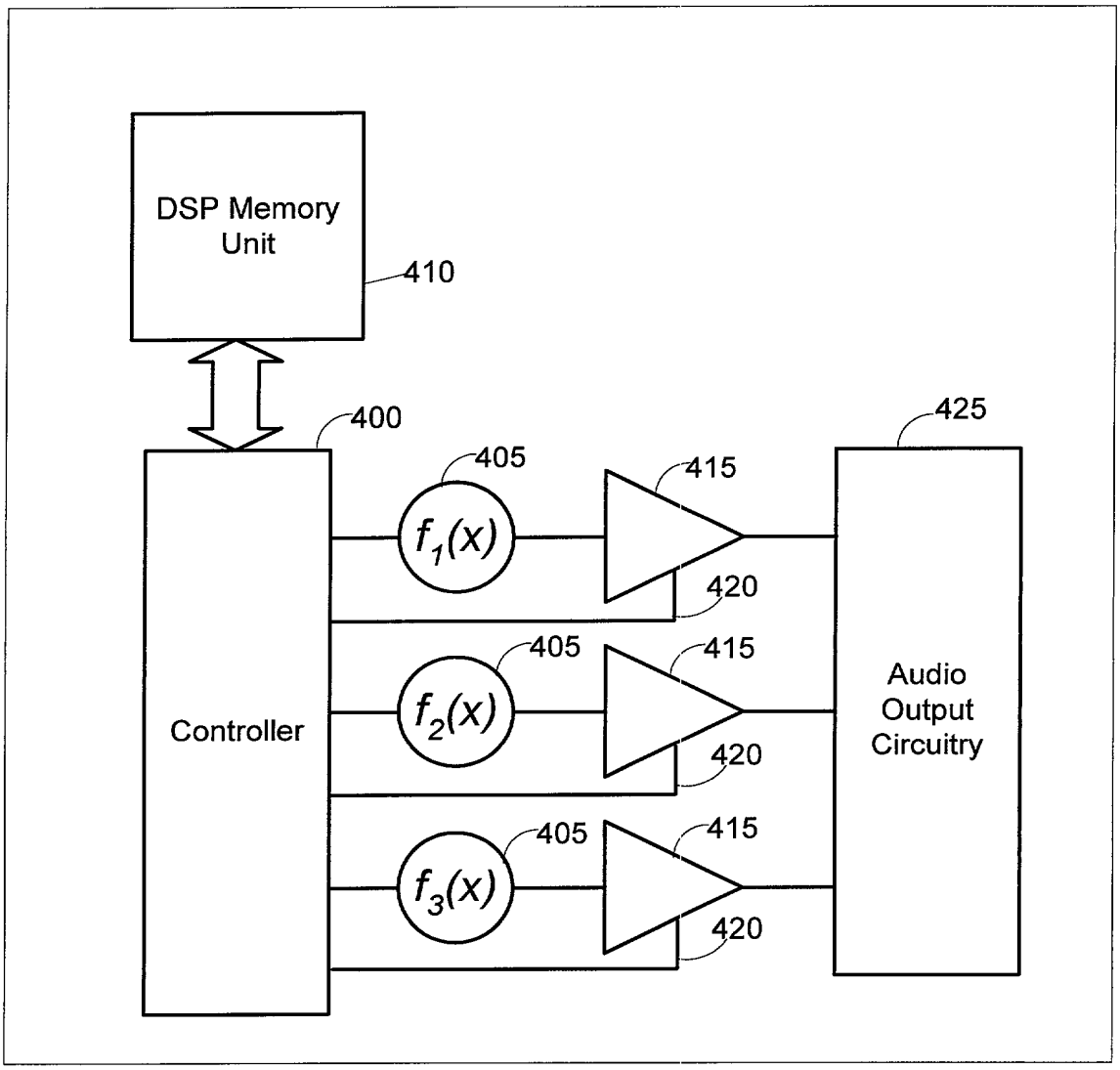
DSP Memory Unit
410
400
Controller
405
$f_1(x)$
415
420
405
$f_2(x)$
415
420
405
$f_3(x)$
415
420
425
Audio Output Circuitry

Fig. 4

Data Structure Field	Memory Required (bytes)	Values/Ranges
Event Number	2	0001-FFFF
Delta Time	2	Delay in 5msec increments 0000h-FFFFh
Track Number	1	1, 2, 3
Frequency	2	1-4000Hz
Volume	2	0 - off 1-FFFFh

502

504

506

508

Fig. 5

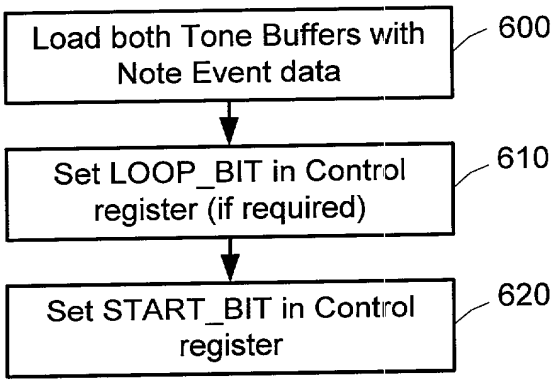
Load both Tone Buffers with Note Event data
600
Set LOOP_BIT in Control register (if required)
610
Set START_BIT in Control register
620

Fig. 6a


Set STOP_BIT in Control register

Fig. 6b

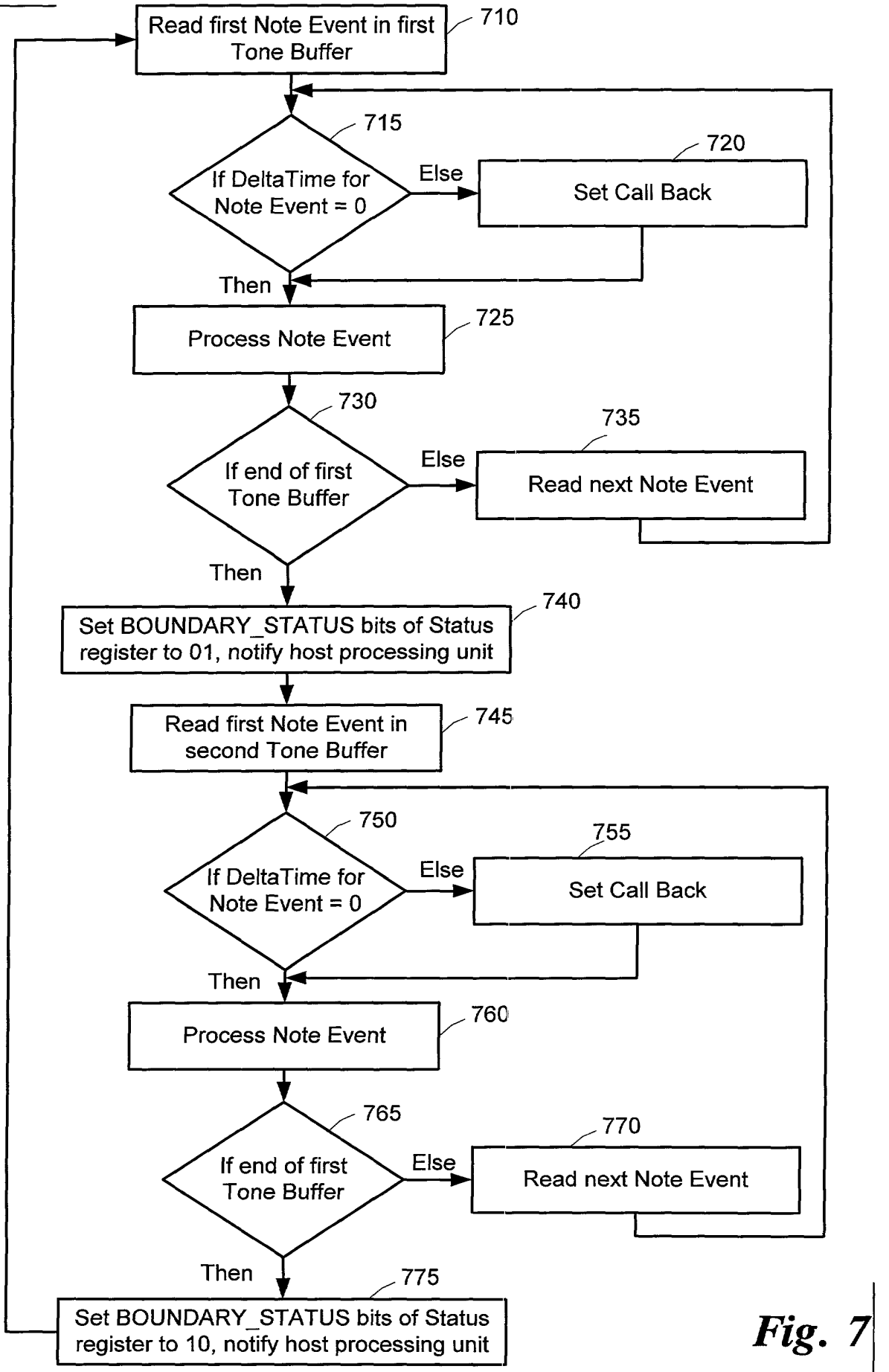
Read first Note Event in first Tone Buffer
710
715
If DeltaTime for Note Event = 0
Else
720
Set Call Back
Then
Process Note Event
725
730
If end of first Tone Buffer
Else
735
Read next Note Event
Then
Set BOUNDARY_STATUS bits of Status register to 01, notify host processing unit
740
Read first Note Event in second Tone Buffer
745
750
If DeltaTime for Note Event = 0
Else
755
Set Call Back
Then
Process Note Event
760
765
If end of first Tone Buffer
Else
770
Read next Note Event
Then
775
Set BOUNDARY_STATUS bits of Status register to 10, notify host processing unit

Fig. 7

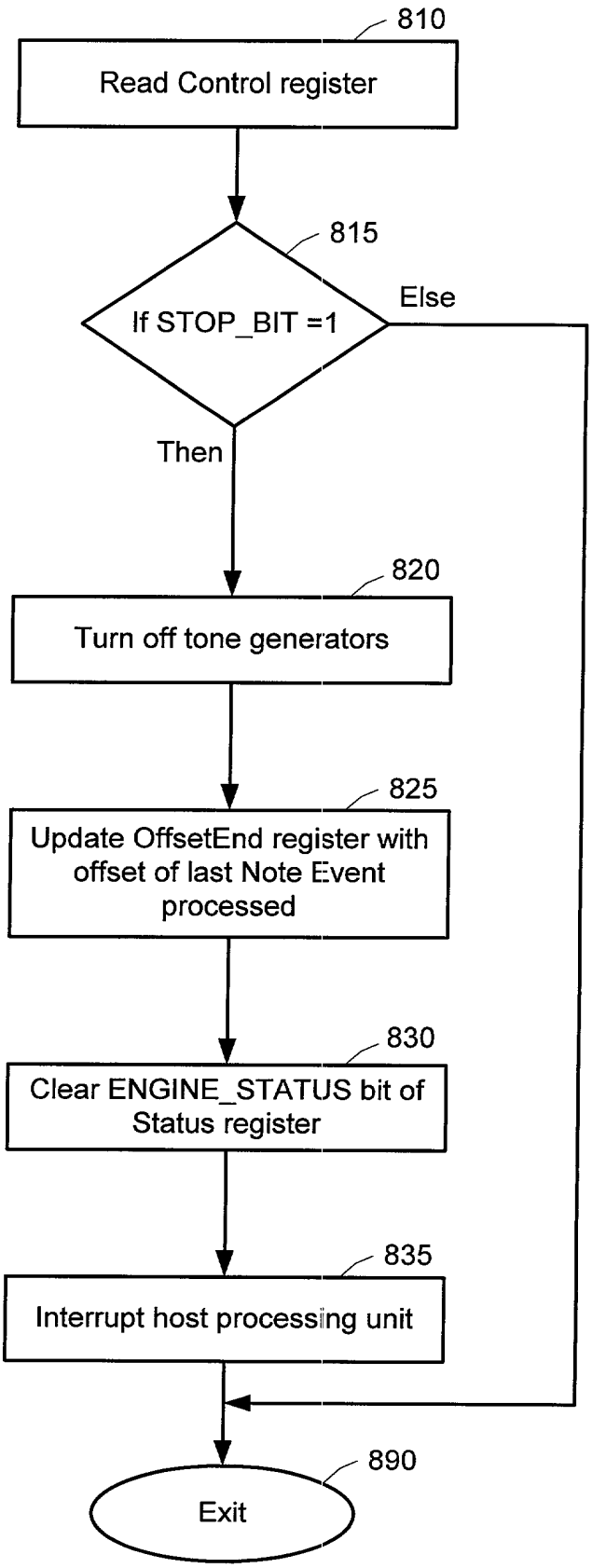
810
Read Control register
815
If STOP_BIT =1
Else
Then
820
Turn off tone generators
825
Update OffsetEnd register with offset of last Note Event processed
830
Clear ENGINE_STATUS bit of Status register
835
Interrupt host processing unit
890
Exit

Fig. 8

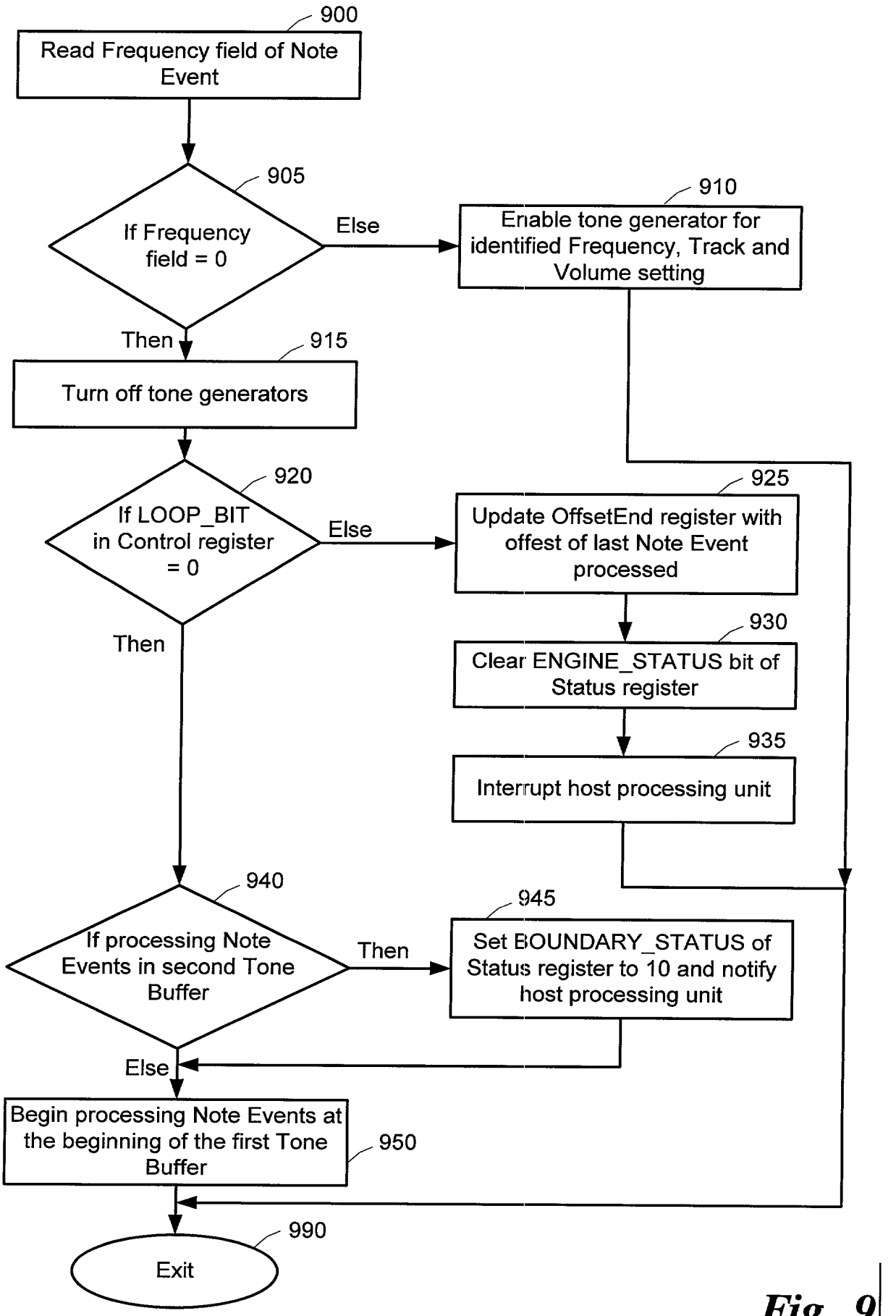
900
Read Frequency field of Note Event
905
If Frequency field = 0
Else
910
Enable tone generator for identified Frequency, Track and Volume setting
Then
915
Turn off tone generators
920
If LOOP_BIT in Control register = 0
Else
925
Update OffsetEnd register with offest of last Note Event processed
Then
930
Clear ENGINE_STATUS bit of Status register
935
Interrupt host processing unit
940
If processing Note Events in second Tone Buffer
Then
945
Set BOUNDARY_STATUS of Status register to 10 and notify host processing unit
Else
Begin processing Note Events at the beginning of the first Tone Buffer
950
990
Exit

Fig. 9